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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/940,729	08/28/2001	Fujihiko Kobayashi	6340-000021	5137

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EXAMINER	
GRAHAM, ANDREW R	

ART UNIT	PAPER NUMBER
2644	

DATE MAILED: 03/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/940,729	KOBAYASHI, FUJIHIKO	
	Examiner	Art Unit	
	Andrew Graham	2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 September 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Allowable Subject Matter

1. The indicated allowability of claims 1-8 is withdrawn in view of the newly discovered reference(s) to Doederlein et al (USPN 5641164) and Yamada (USPN 3721840). Rejections based on the newly cited reference(s) follow. In view of these new grounds of rejection, the finality of the previous action is withdrawn.

Claim Rejections - 35 USC § 112

2. The amendment made to Claim 1 in view of the rejection under 35 U.S.C. 112 in the previous office action is sufficient to overcome the grounds of said previous rejection. Accordingly, said rejection is hereby withdrawn.

Claim Objections

3. **Claim 6** is objected to because of the following informalities:

Claim 6 recites the limitation "the elastic member" in the third line of the claim. There is insufficient antecedent basis for this limitation in the claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. **Claims 1, 2, and 4** are rejected under 35 U.S.C. 102(b) as being anticipated by Doederlein et al (USPN 5641164). Hereafter, "Doederlein et al" will be referred to as "Doederlein".

Doederlein discloses a planer speaker device comprising a sound board and a piezoelectric driver.

Specifically regarding **Claim 1**, Doederlein teaches:

A piezo-electric speaker (24, as part of 10; Figure 2; col. 2, lines 47-51; col. 3, lines 7-15 and 40-47) comprising

a piezo-electric member (62) generating a strain according to an electric signal applied thereto (function of piezoceramic, col. 3, lines 58-60),

a piezo-electric vibration plate (64) coupled with and suspending said piezo-electric member (62) and converting the strain to the acoustic vibration (function of metal disc, col. 3, lines 58-60 and 66-67; col. 4, lines 1-7); and

a sound-board (56) resonating to the acoustic vibration (col. 3, lines 62-67; col. 4, lines 1-2 and 43-46),

said piezo-electric member (62) having an area (illustrated by width, Figure 9) smaller than said piezo-electric vibration plate (64) so that said piezo-electric member (62) is spaced from and out of contact with said sound board (56) (Figure 9)

and the piezo-electric member (62) being supported on the sound-board (62 part of 52, 52 mounted within sound board aperture with minimal damping; col. 4, lines 52-58);

the acoustic vibration caused by the piezo-electric vibration plate being propagated from the sound-board to the ambient air to generate a sound ("rigidly coupled", col. 4, lines 43-58).

Regarding **Claim 2**, Doederlein teaches:

an elastic member (66, "flexible") supporting the piezo-electric vibration plate (64) on the sound-board (56) for generating a sound from the sound-board (56) transmitted thereto from the piezo-electric vibration plate (64) via the elastic member (66)(tape causes minimal damping; col. 4, lines 1-4 and 43-58).

Regarding **Claim 4**, Doederlein teaches:

wherein the elastic member (66) supports the piezo-electric vibration plate (64) at the periphery thereof (Figure 9).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. **Claims 3 and 5-8** are rejected under 35 U.S.C. 103(a) as being unpatentable over Doederlein as applied above, and in further view of Yamada (USPN 3721840).

As detailed above, Doederlein discloses a planer speaker device comprising a sound board and a piezoelectric driver. AS is generally shown in Figure 9, the transducer element (52) of Doederlein is supported within a gap or opening of a surrounding structure (56). The securing component of this support is tape (66) which is adhered to both piezoceramic element (62) and metal plate (64).

Regarding Claim 3, Doederlein does not clearly specify:

the elastic member is adhered to the whole surface of the piezo-electric vibration plate.

Yamada discloses a sound generator that comprises a piezo electric element supported within an opening in a support structure. Parallel to the structure of Doederlein, the generator of Yamada comprises a piezoelectric member (1), a wider plate (3), and an elastic or vibratory member (4) (col. 1, lines 42-48; Figure 1).

Specifically regarding **Claim 3**, Yamada teaches:

the elastic member (4) is adhered to the whole surface of the piezo-electric vibration plate (3)(col. 1, lines 40-48; Figures 1 and 4).

To one of ordinary skill in the art at the time the invention was made, it would have been obvious to implement the piezoceramic element of Doederlein on the side of the plate opposite the vibratory element, as is disclosed in the teachings of Yamada. The motivation behind such a modification would have been that such an arrangement would have provided an additional layer of physical protection for the piezoceramic component of Doederlein, shielding the component from externally introduced pressures, such as from fingertips. It is particularly noted that Doederlein teaches that a piezoceramic may be placed on the other side of the metal plate (col. 4, lines 4-7).

Regarding **Claim 5**, Doederlein in view of Yamada teach:

a vibration transmitting member (4 of Yamada) having a vibration propagating velocity higher than that of the sound-board (56 of Doderlein) for supporting the periphery of the piezo-electric vibration plate (4 supports edges of electrode 3, Figure 2 of Yamada; col. 2, lines 10-14)(the plate 4 of Yamada has higher sound propagation than sound board of Doederlein because the plate, made of a synthetic resin such as polyethylene terephthalate (col. 1, lines 51-53; col. 2, lines 1-4), is more dense than the sound board of Doederlein, which is made of a resin foam (col. 3, lines 62-65). The propagation of sound in a medium varies in a manner proportionate with the density of the transmission medium. The use of the type of plate

of Yamada for securing the member of Doederlein would have been the enabled thickness selection for maximizing the transducing efficiency, at least over the area of the affixed piezoelectric driver).

the vibration transmitting member (4) being mounted in an aperture formed in the sound-board (located in opening of support 5, analogous to opening of sound board of Doederlein; col. 1, lines 48-51).

Regarding **Claim 6**, Yamada particularly teaches:

a vibration transmitting member (4) having a vibration propagating velocity higher than that of the sound-board (56 of Doederlein) for supporting the periphery of the elastic member (8 or 9)(at least the edge of 8 or 9 is supported by 4; col. 2, lines 29-36; please see rejection of Claim 5 above regarding the limitation of vibration propagation);

the vibration transmitting member (4) being mounted in an aperture formed in the sound-board (located in opening of support 5, analogous to opening of sound board of Doederlein; col. 1, lines 48-51).

Regarding **Claim 7**, Yamada particularly teaches:

the vibration transmitting member is a circle-annular vibration ring (4, embodiment of Figure 2, with opening 7)(col. 2, lines 10-28)

Regarding **Claim 8**, Yamada particularly teaches:

the vibration transmitting member (4, embodiment of Figures 1,4) is a plate-shaped vibration board (col. 1, lines 46-51)

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Graham whose telephone number is 703-308-6729. The examiner can normally be reached on Monday-Friday, 8:30 AM to 5:00 PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on (703)305-4040. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SINH TRAN
SUPERVISORY PATENT EXAMINER

Andrew Graham
Examiner
A.U. 2644

ag
March 21, 2005